JOCKO RIVER TROUT HATCHERY RACEWAY REPLACEMENT FWP # 7153101





TO POLSON **PROJECT LOCATION**



PROJECT SITE VICINITY MAP

NO SCALE

SHEET INDEX

SHEET# C101	SHEET TITLE. SHEET INDEX, VICINITY MAP AND PROJECT LOCATION
C102	NOTES, LEGEND AND ABBREVIATIONS
C103	DEMOLITION PLAN
C104	SITE PLAN
C105	NEW RACEWAYS
C106	RACEWAY DETAILS
C107	PAVING PLAN
C201	SHOW POND PLAN
C202	SHOW POND DETAILS
S101	RACEWAY STRUCTURAL PLAN
S102	RACEWAY STRUCTURAL DETAILS
S103	GENERAL STRUCTURAL DETAILS
S201	SHOW POND STRUCTURAL PLAN
E101	ELECTRICAL PLAN

Prepared For:

Montana Fish, Wildlife and Parks

Prepared By:

Robert Peccia & Associates, Inc. 825 Custer Avenue Helena, Montana 59601

406.447.5000 www.rpa-hln.com

203

C101

ø	DIAMETER	MAX	MAXIMUM
0	AT	MC	MECHANICAL COUPLING
AB	ANCHOR BOLT, AGGREGATE BASE,	MDT	MONTANA DEPT. OF TRANSPORTATION
122	ABANDONED	MECH	MECHANICAL
AC	ASBESTOS CEMENT	MEP	MILITARY EQUIPMENT PARKING
AFF	ABOVE FINISHED FLOOR	MFR MH	MANUFACTURER MANHOLE
AL	ALUMINUM ANCHOR	MIN	MINIMUM, MINUTE
ANSI	AMERICAN NATIONAL STANDARDS	MJ	MECHANICAL JOINT
MINO	INSTITUTE	MPWSS	MONTANA PUBLIC WORKS STANDARD
APPROX	APPROXIMATELY	1100	SPECIFICATIONS
AWWA	AMERICAN WATER WORKS ASSOCIATION	N	
BF	BLIND FLANGE, BUTTERFLY	N.I.C.	NORTH NOT IN CONTRACT
BFF	BELOW FINISH FLOOR	NO.	NUMBER
BFV	BUTTERFLY VALVE	NPT	NATIONAL PIPE THREAD
BLDG	BUILDING	NTS	NOT TO SCALE
BM	BENCH MARK	OAL	OVERALL LENGTH
BOC	BACK OF CURB	OC	ON CENTER
BV	BALL VALVE	OD.	OUTSIDE DIAMETER
BVC	BEGIN VERTICAL CURVE	OF	OUTSIDE FACE, OVERFLOW
C	CHANNEL, CENTER	OHPWR	OVERHEAD POWER
CI	CAST IRON, CURB INLET		
CIP	CAST IRON PIPE, CAST-IN-PLACE	P	PROPOSED
CIPP	CURED-IN-PLACE PIPE	PC	POINT OF CURVATURE
C , CL	CENTERLINE	PE PG	PLAIN END
CLR	CLEAR	PL	PERFORMANCE GRADE PROPERTY LINE, PLATE
CMP	CORRUGATED METAL PIPE	PI	POINT OF INTERSECTION
CO	CLEANOUT	POV	PRIVATELY OWNED VEHICLE
CPE	CONTROL POINT CORRUGATED POLYETHYLENE PIPE	PROP	PROPERTY, PROPOSED
CPLG	COUPLING	PSI	POUNDS PER SQUARE INCH
CPVC	CHLORINATED POLYVINYL CHLORIDE	PT	POINT OF TANGENCY
CSP	CORRUGATED STEEL PIPE	PVC	POLYVINYL CHLORIDE
CV	CHECK VALVE	PM	POINT OF VERTICAL INTERSECTION
CY	CUBIC YARDS	PWR	UNDERGROUND POWER
DEPT	DEPARTMENT	R	RADIUS
DH	DRILL HOLE (SOIL BORING)	RCB	REINFORCED CONCRETE BOX
DI	DUCTILE IRON, DRAIN INLET	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	ROW	RIGHT-OF-WAY
DIMJ	DUCTILE IRON MECHANICAL JOINT	RPA	ROBERT PECCIA & ASSOCIATES
DIP	DUCTILE IRON PIPE	RPC	RED PLASTIC CAP
DR	DRAIN, DIMENSION RATIO	RR RT	RAILROAD RIGHT
DWG	DRAWING	RW	RIGHT-OF-WAY, RACEWAY
EA	EACH	R/W	RIGHT-OF-WAY
EFF	EFFLUENT	9.	A COLOR DE LA COLO
ELEV	ELEVATION	S	SLOPE
EOP	EDGE OF PAVEMENT	SCH	SCHEDULE
EVC	END VERTICAL CURVE	SD	STORM DRAIN STORM DRAIN INLET
EW	EACH WAY	SDR	STANDARD DIMENSION RATIO
EXT	EXTERIOR	SECT	SECTION
E,EXST,EXIST	EXISTING	SF/SQFT	SQUARE FOOT/FEET
FAB	FABRICATION	SS	SANITARY SEWER, STAINLESS STEEL
FC	FLEXIBLE COUPLING	STA	STATION
FCA	FLANGED COUPLING ADAPTER	STD	STANDARD
FDN FETS	FOUNDATION FLARED END TERMINAL SECTION	STL	STEEL, STEEL PIPE
FF		T	TELEPHONE
FG	FINISHED FLOOR FINISH GRADE	TBC	TOP BACK OF CURB
FH	FIRE HYDRANT	TBM	TEMPORARY BENCH MARK
FL	FLOOR, FLANGE, FLOW LINE	TEMP	TEMPERATURE, TEMPORARY
FM	FORCE MAIN	THD	THREADED
FOC	FACE OF CURB, FACE OF CONCRETE	TOW	TOP OF WALL
FPT	FEMALE PIPE THREAD	TP TP	TEST PIT
FTG	FOOTING	TV	CABLE TELEVISION
FT	FOOT, FEET	TYP	TYPICAL
G	GAS	UG	UNDERGROUND
GA	GAUGE	UGP	UNDERGROUND POWER
GALV	GALVANIZED	UPC	UNIFORM PLUMBING CODE
GPM	GALLONS PER MINUTE	V	VENT, VOLT, VALVE
GSP	GALVANIZED STEEL PIPE	VC	VOICE/COMMUNICATIONS
GV	GATE VALVE	VERT	VERTICAL
HD	HEAVY DUTY; HOT-DIPPED	VLV	VALVE
HDR	HEADER	W	WATER, WEST
HDPE	HIGH DENSITY POLYETHYLENE PIPE	W/	MTH
HGT	HEIGHT	W/O	WITHOUT
HYD	HEIGHT HYDRANT	WS	WATER SURFACE, WATER STOP
1110	HIRRORY	WV	WATER VALVE

INTERNATIONAL BUILDING CODE

INSIDE DIAMETER

INTERIOR, INTERSECTION

LINEAL FOOT, LINEAR FEET

INFLUENT

INVERT ANGLE

POUND(S)

ID

INFL

LB(S)

WELDED WIRE FABRIC

USED AS A VARIABLE

YARD

YD

LEGEND				
DESCRIPTION				
TELEPHONE				
UNDERGROUND ELECTRICAL				
OVERHEAD POWER				
GAS	- Ris-			
WATER				
GAS METER	GN			
VALVES	×			
STREET LIGHT	Ď.			
POWER POLE	9			
ELECTRICAL SERVICE METER	SM			
TRANSFORMER	TE			
TELEPHONE PEDESTAL	TP			
TELEPHONE BOX	PB			
YARD HYDRANT	ō			
WELL	0			
WATER VAULT/MANHOLE	8			
CONTROL POINT	Δ			

GENERAL NOTES

- GENERAL NOTES, ABBREVIATIONS, AND LEGEND FOR SHEETS INVOLVING CIVIL WORK ARE SHOWN ON THIS SHEET. THIS IS A STANDARD LEGEND SHEET, THEREFORE SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPEAR ON THIS SHEET AND SOME MAY NOT BE UTILIZED ON THIS PROJECT. CONTACT THE ENGINEER FOR ABBREVIATIONS AND SYMBOLS NOT LISTED.
- UNLESS SPECIFICALLY SHOWN ON THESE DRAWINGS, ALL WORK WILL CONFORM TO MPWSS, LATEST EDITION.
- WITH 48 HOURS NOTICE, BASE LINE POINTS OR OTHER CRITICAL HORIZONTAL CONTROL MAY BE OBTAINED FROM THE ENGINEER IN A NORTHING AND EASTING FORMAT CORRESPONDING WITH CONTROL POINTS, AUTOCAD BASE MAP WILL BE PROVIDED TO CONTRACTOR TO ASSIST IN LOCATING PERTINENT POINTS FOR CONSTRUCTION.
- EXISTING UNDERGROUND INSTALLATIONS AND PRIVATE UTILITIES SHOWN ARE FROM THE BEST INFORMATION AVAILABLE. ACCURACY OF SUCH INFORMATION IS NOT GUARANTEED AND SHALL BE VERIFIED BY THE CONTRACTOR, SERVICE LINES (IRRIGATION, DATA, WATER, POWER, COMMUNICATIONS, GAS, STEAM, AND SEWER) MAY NOT BE STRAIGHT (DEPTH NOT EVEN) OR AS INDICATED ON THE PLANS. THE CONTRACTOR SHALL NOTIFY EACH UTILITY COMPANY BEFORE EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY LOCATES.
- CONTRACTOR SHALL FIELD VERIFY LINE AND GRADE OF EXISTING CONNECTIONS WELL IN ADVANCE OF MAKING THE CONNECTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS REQUIRED FOR THEIR CONSTRUCTION ACTIVITIES.
- STORM DRAIN, SANITARY SEWER, AND WATER LINES SHALL BE SLOPED AT A UNIFORM GRADE BETWEEN ELEVATIONS SHOWN.
- ALL EXISTING UTILITIES THAT ARE TO BE REMOVED SHALL BE CAPPED AND PLUGGED AT THEIR CUT TERMINATION POINTS.
- FIRE DEPARTMENT ACCESS MUST BE PROVIDED TO ALL BUILDINGS DURING CONSTRUCTION.
- THE CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS, COUPLINGS, AND SPOOL PIECES FOR CONNECTING NEW UTILITIES TO EXISTING UTILITIES. THESE PLANS MAY NOT SHOW ALL REQUIRED COMPONENTS FOR MAKING THE CONNECTIONS.

SECTION LETTER -OR DETAIL NUMBER ON DWG WHERE SECTION OR DETAIL IS TAKEN: DWG NO. WHERE SHOWN ON DWG WHERE SECTION OR DETAIL IS SHOWN: DWG NO. WHERE TAKEN SECTION OR DETAIL SHOWN MULTIPLE PLACES -

DETAIL AND SECTION CALLOUT

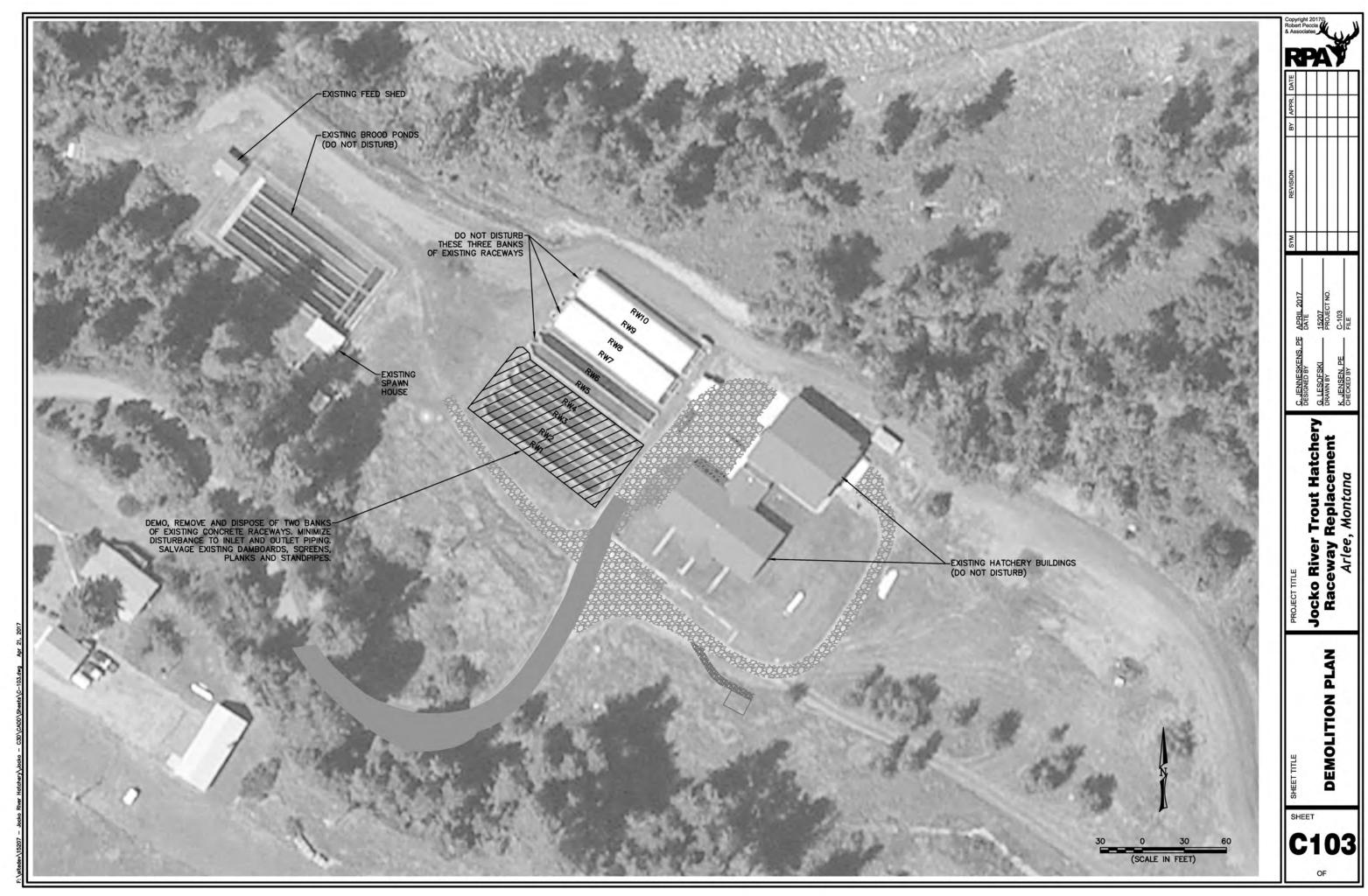
ENLARGED FOR CLARITY

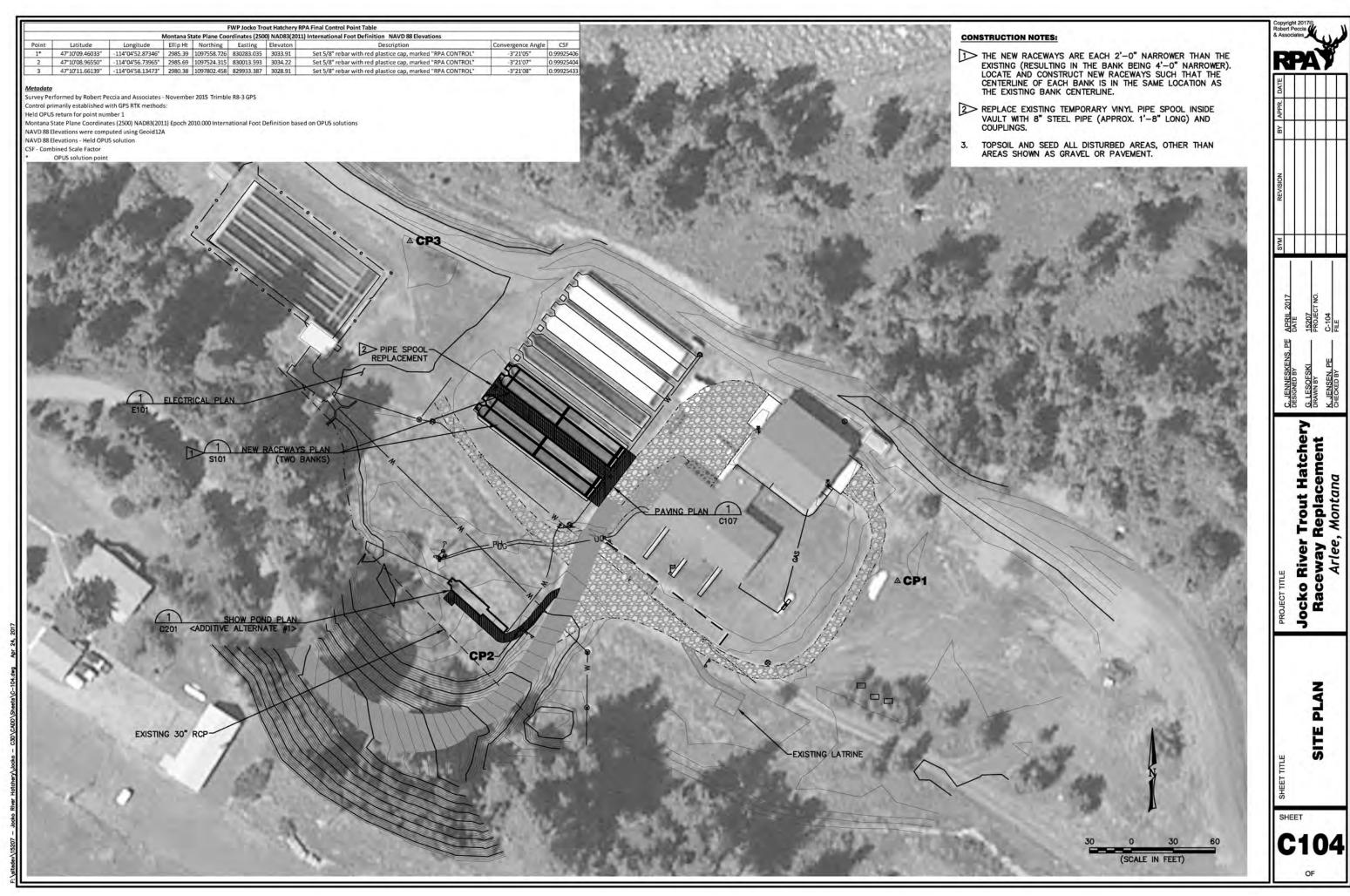
APRIL

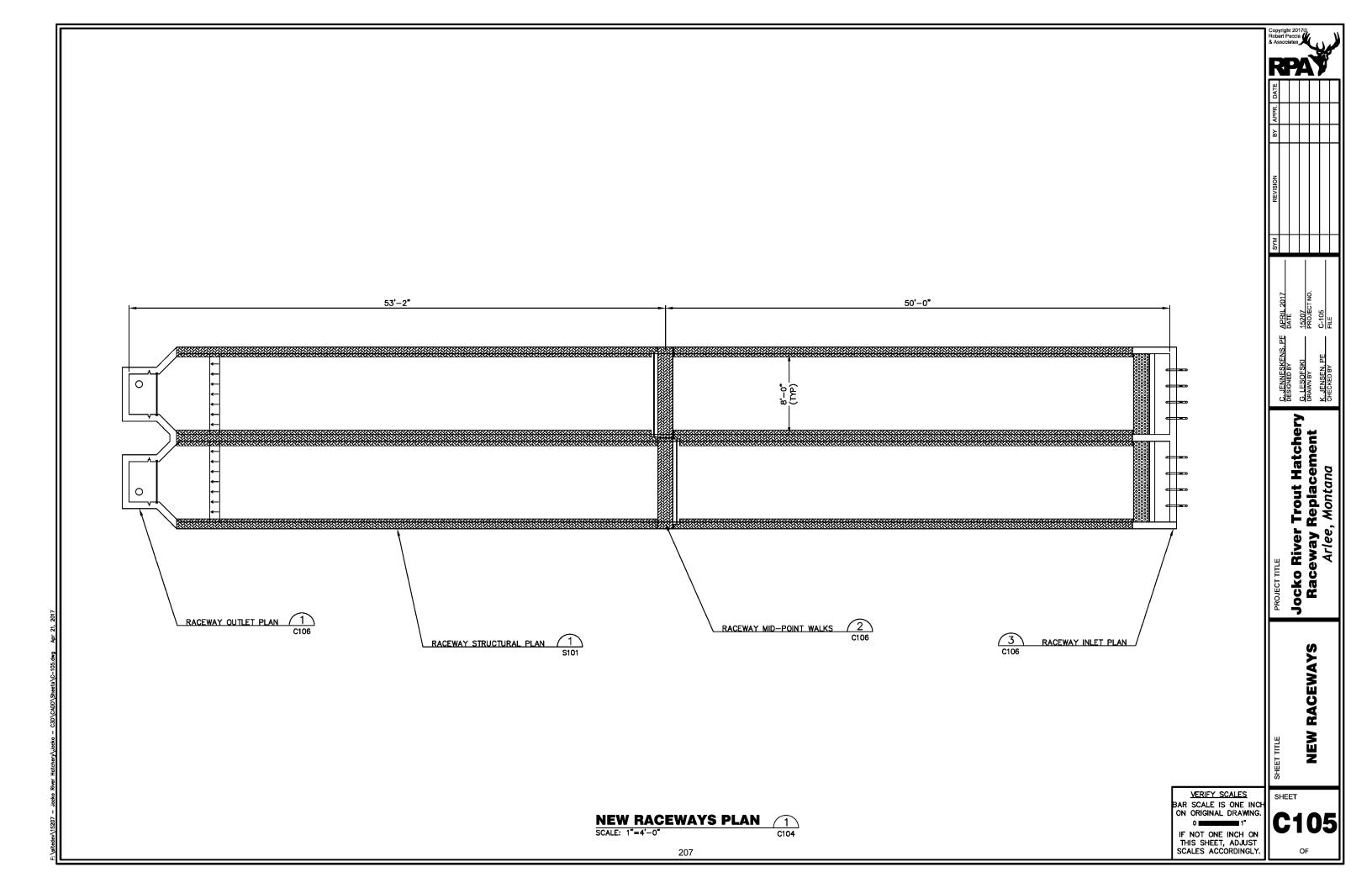
ocko

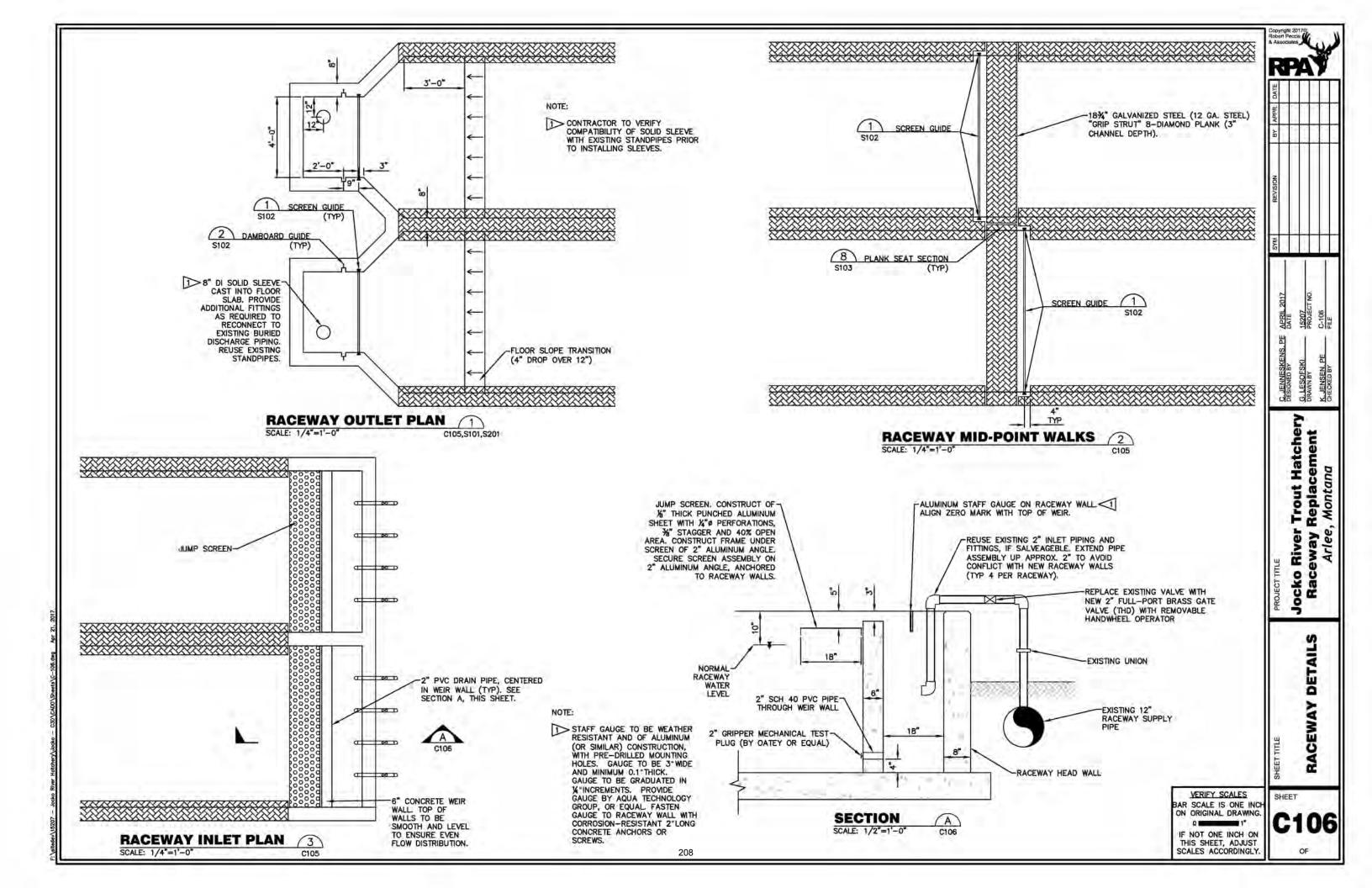
Ra

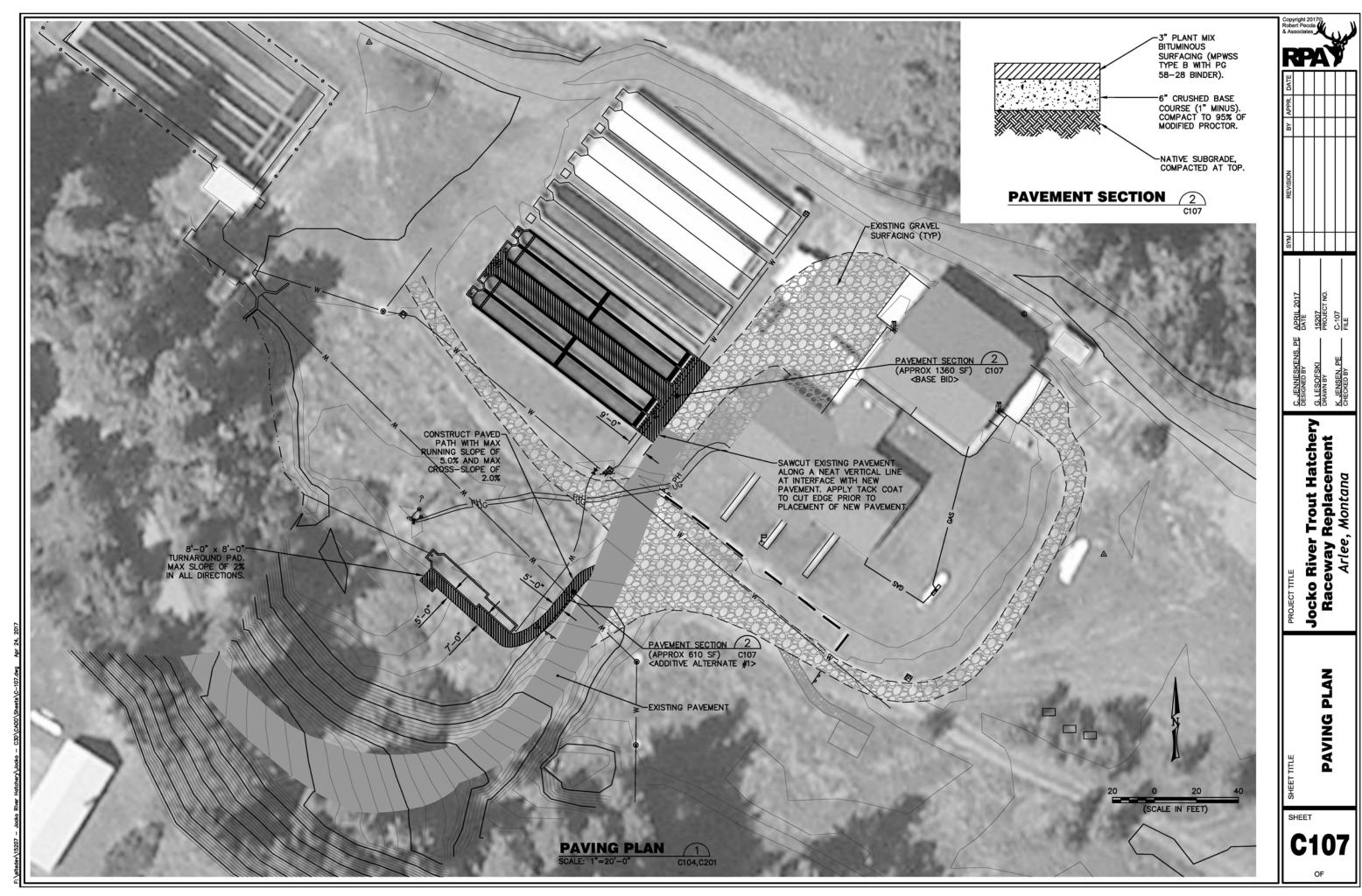
LEGEND NOTES

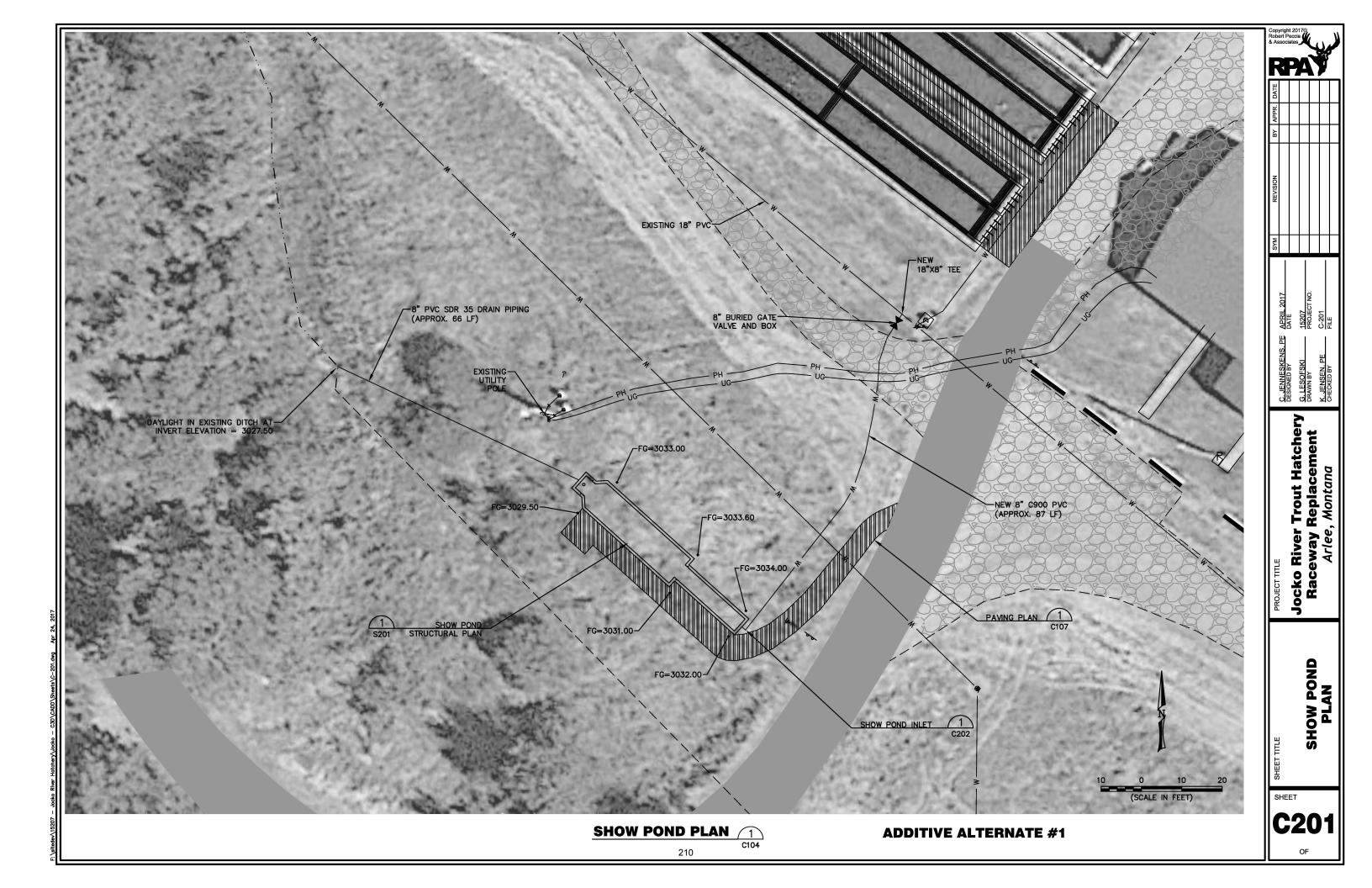


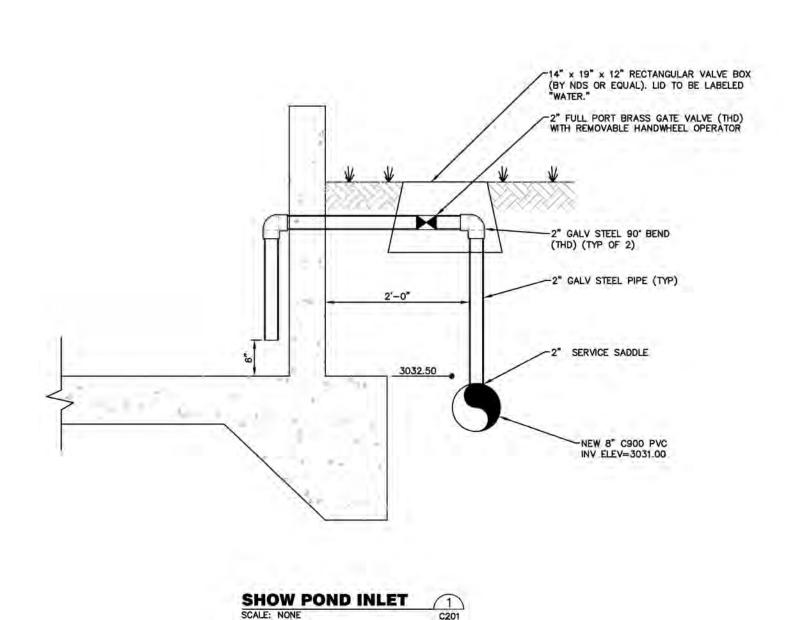












Copyright 2017@
Robert Peccia

A Associates

A Description

A Associates

 C. JENNESKENS. PE
 APRIL 2017
 SYM
 REVISION
 BY A

 DESIGNED BY
 DATE
 15207
 FROJECT ND.
 C.202
 C.202
 CHECKED BY
 FRIE

Jocko River Trout Hatchery Raceway Replacement Arlee, Montana

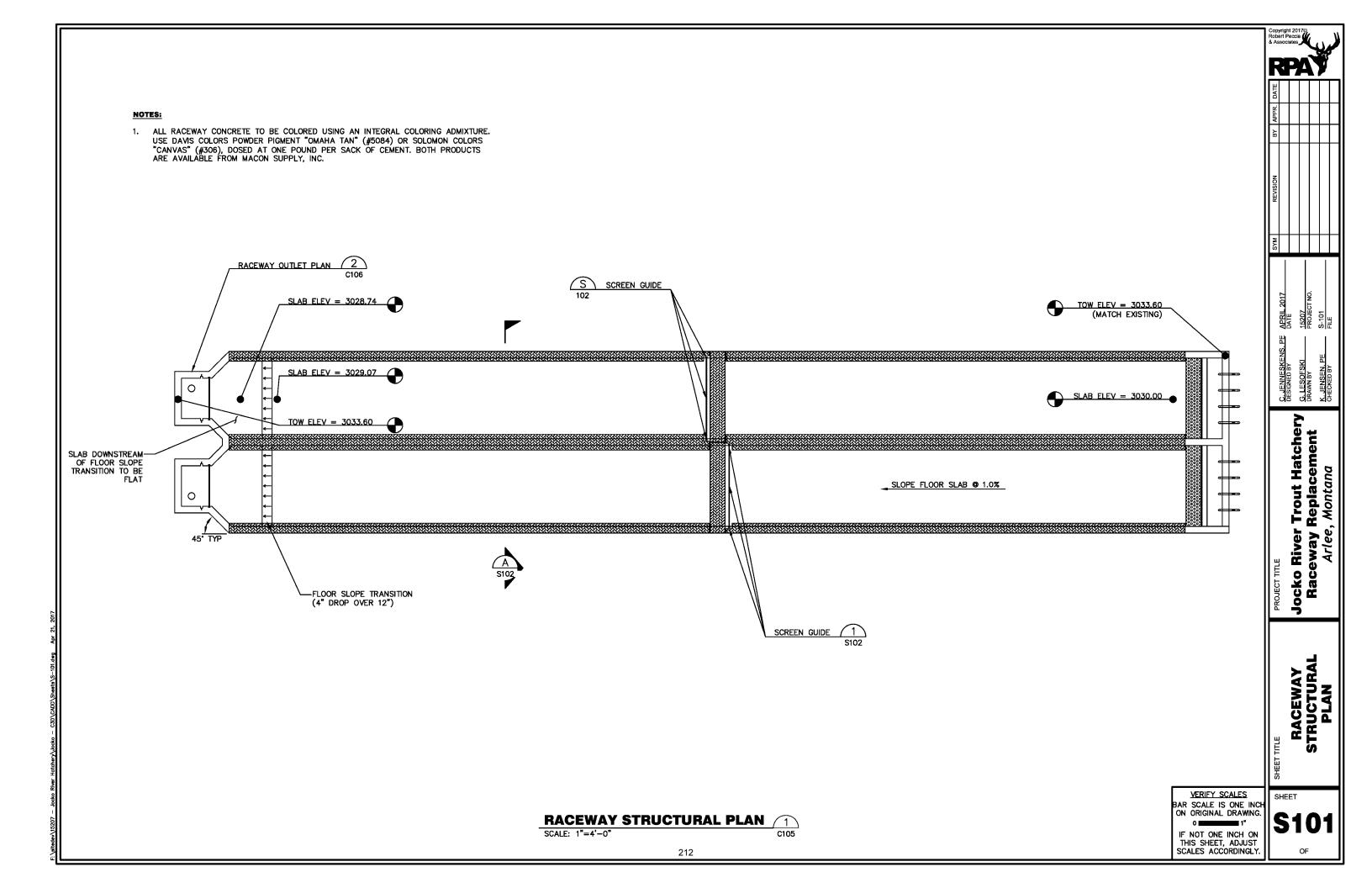
> SHOW POND DETAILS

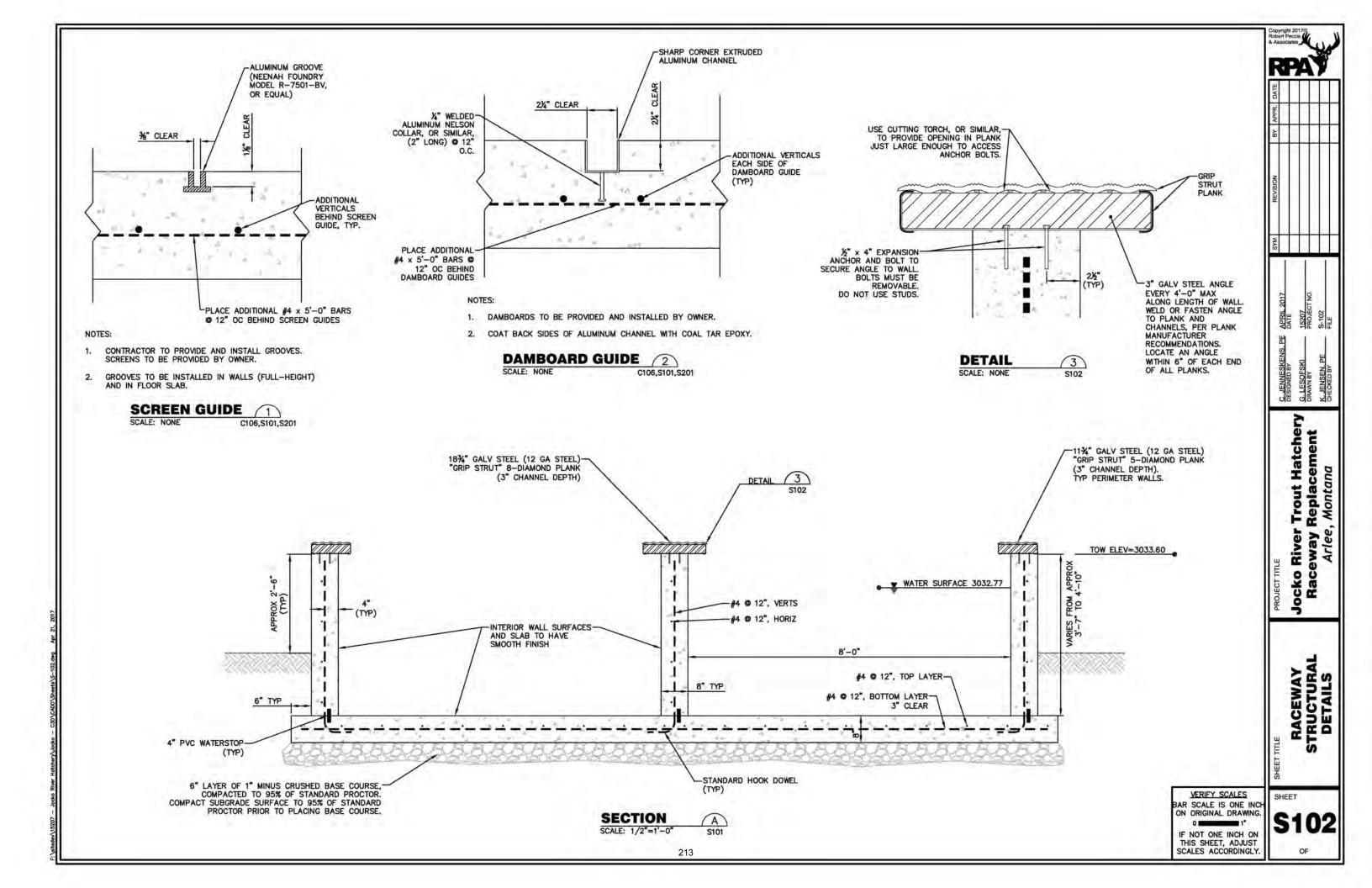
ет пле

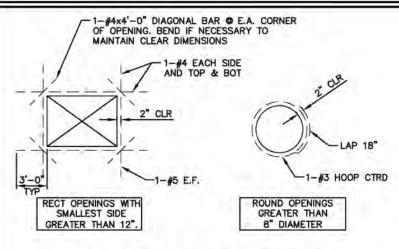
SHEET

C20

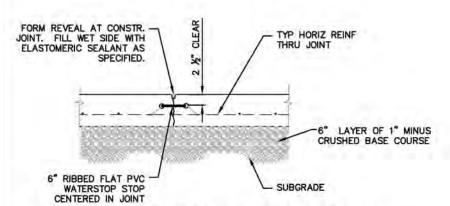
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



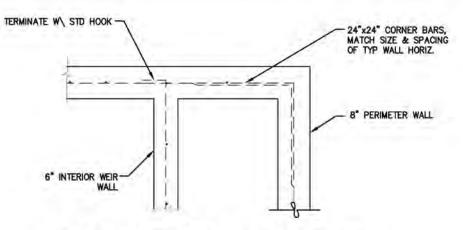




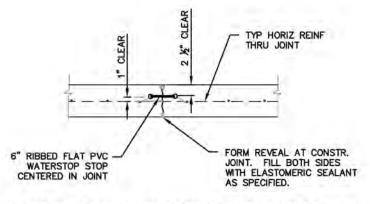
OPENING REINF DETAIL



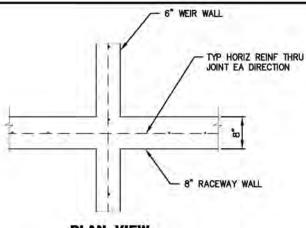
BASE SLAB CONSTRUCTION JOINT SCALE: NONE



RACEWAY WALL REINF DETAIL (2) SCALE: NONE

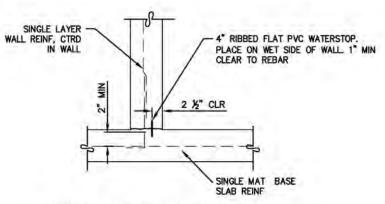


CONC WALL CONSTRUCTION JOINT (5) SCALE: NONE



PLAN VIEW

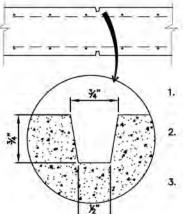
RACEWAY WALL REINF DETAIL 3 SCALE: NONE



WALL TO SLAB JOINT 6 SCALE: NONE

NOTES:

- DETAILS ON THIS SHEET APPLY TO THE NEW RACEWAYS AND THE NEW SHOW POND.
- ALL WALL AND SLAB 2. CONSTRUCTION JOINTS REQUIRE WATERSTOPS. SEE WATERSTOP DETAILS ON THIS SHEET.
- CONSTRUCTION JOINT LOCATIONS ARE NOT SHOWN AND SHALL BE LOCATED BY CONTRACTOR AND SUBJECT TO ENGINEER'S
- ALL EXPOSED CONCRETE EDGES TO INCLUDE 34" CHAMFER.



- CAST REVEAL WHERE INDICATED ON OTHER
- WALL REINFORCING IS CONTINUOUS THROUGH
- CAULK AS INDICATED BY OTHER DETAILS.

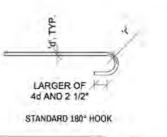


BAR#	LAP_L
W.W.F.	12"
#3	12"
#4	19"
#5	24"
#6	29"
#7	42"
#8	48"

- GRADE 60 REINF., Fc = 4000 PSI
 "USE LAP LENGTHS SHOWN IN THIS
 SCHEDULE, UNLESS NOTED
- OTHERWISE ON THESE DRAWINGS. FOR BEAM OR FOOTING TOP BARS AND WALL HORIZONTAL BARS, MULTIPLY THE ABOVE LAP LENGTHS BY 1.3.
- INDICATED ON DRAWINGS AS La REINFORCEMENT SHALL BE HOOKED AT DISCONTINUOUS ENDS (TOP OF OPENINGS. TOP OF WALLS, CORNERS, ETC.)

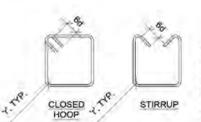
REBAR DETAILS (8) SCALE: NONE











DO NOT FIELD BEND REINFORCEMENT EMBEDDED IN CONCRETE WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

	BEND RADIUS, Y	
BAR SIZE	STD. HKS. 8 OFFSETS	CROSS-TIES, HOOPS & STIRRUPS
#3 - #5	36	2d
#6 - #8	3d	N/A
#9 - #11	4d	N/A
#148#18	5d	N/A

VERIFY SCALES AR SCALE IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

SHEET

APRIL

C. JENNESKE DESIGNED BY

G. LESOF DRAWN BY

Hatchery

Replacement

Jocko River Raceway

GENERAL STRUCTURAL DETAILS

River

Montana

Arlee,

214

SCALE: NONE

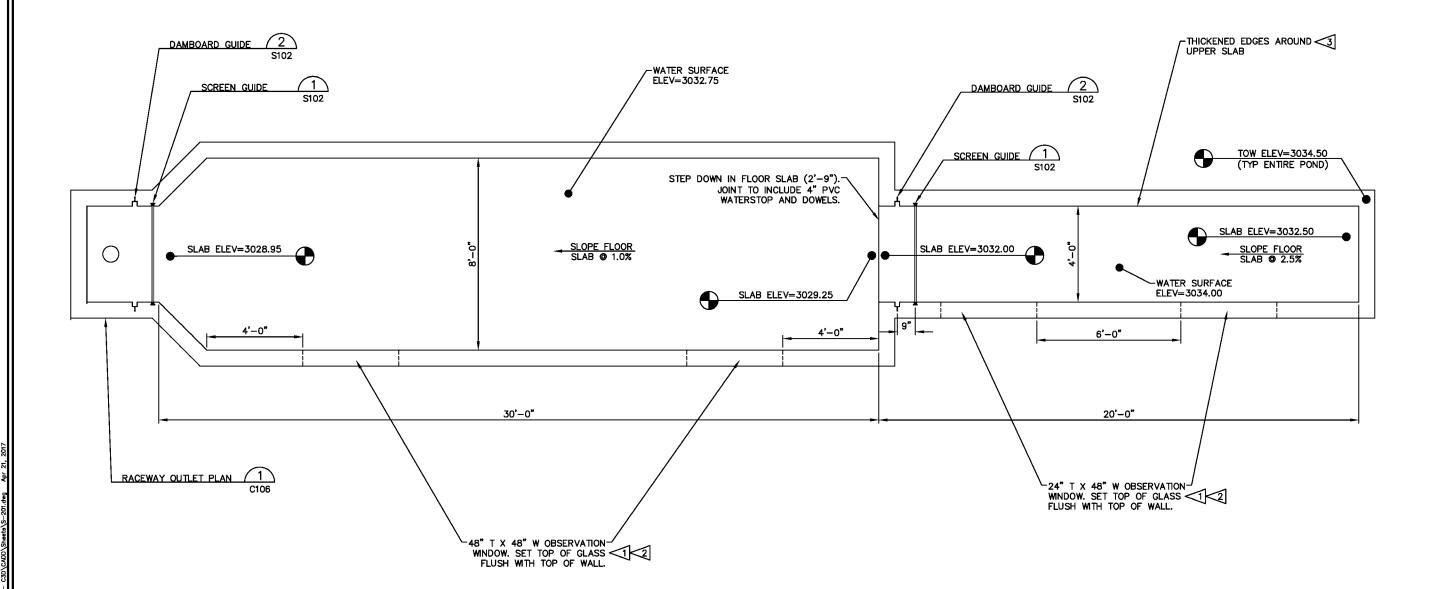
NOTES:

CONSTRUCT OBSERVATION WINDOWS OF 3/4" CLEAR TEMPERED LAMINATED GLASS, MADE UP OF TWO LAYERS OF 3/8" CLEAR TEMPERED GLASS WITH A 0.060" VINYL INNER LAYER. WINDOWS SHALL INCLUDE AN ALUMINUM OR STAINLESS STEEL FRAME AROUND THREE SIDES, CAST INTO THE CONCRETE WALL. FRAME TO INCLUDE 3" LONG HEADED ANCHOR STUDS (OR SIMILAR) AT 12" ON CENTER AROUND THE THREE EMBEDDED SIDES, TO ANCHOR FRAME INTO CONCRETE WALL. ALL JOINTS BETWEEN THE GLASS AND FRAME, BOTH WET SIDE AND DRY SIDE, SHALL BE SEALED TO BE WATERTIGHT WITH A SEALANT THAT IS COMPATIBLE WITH THE GLASS AND METAL FRAME, AND IS FORMULATED AND INTENDED FOR CONSTANT WATER IMMERSION (SONOLASTIC POLYSULFIDE SEALANT, OR EQUAL). WINDOW SUPPLIER REFERENCE: VALLEY GLASS OF KALISPELL, MATT HARTLEY, 406-257-9200.

2> WINDOWS TO INCLUDE SMOOTH METAL CAP (ALUMINUM OR STAINLESS STEEL).

CONSTRUCT UPPER SLAB WITH THICKENED EDGES, SUCH THAT BOTTOM OF THICKENED EDGES MATCHES BOTTOM ELEVATION OF LOWER SLAB. THICKENED EDGE TO BE 8" WIDE MINIMUM AT BOTTOM, AND INCLUDE (4) #4 BARS, CONTINUOUS.

4. ALL SHOW POND CONCRETE TO BE COLORED USING AN INTEGRAL COLORING ADMIXTURE. USE DAVIS COLORS POWDER PIGMENT "OMAHA TAN" (#5084) OR SOLOMON COLORS "CANVAS" (#306), DOSED AT ONE POUND PER SACK OF CEMENT. BOTH PRODUCTS ARE AVAILABLE FROM MACON SUPPLY, INC.



Copyright 2017s Rebert Pecula & Associates

SYM REVISION BY APPR, DATE

C. JENNESKENS. PE APRIL 2017
DESIGNED BY
G. LESOFSKI 15207
K. JENSEN, PE
G. LESOFSKI PROJECT NO.
K. JENSEN, PE
G. LEKKED BY
FILE

Jocko River Trout Hatchery Raceway Replacement

W POND

SHOW

VERIFY SCALES

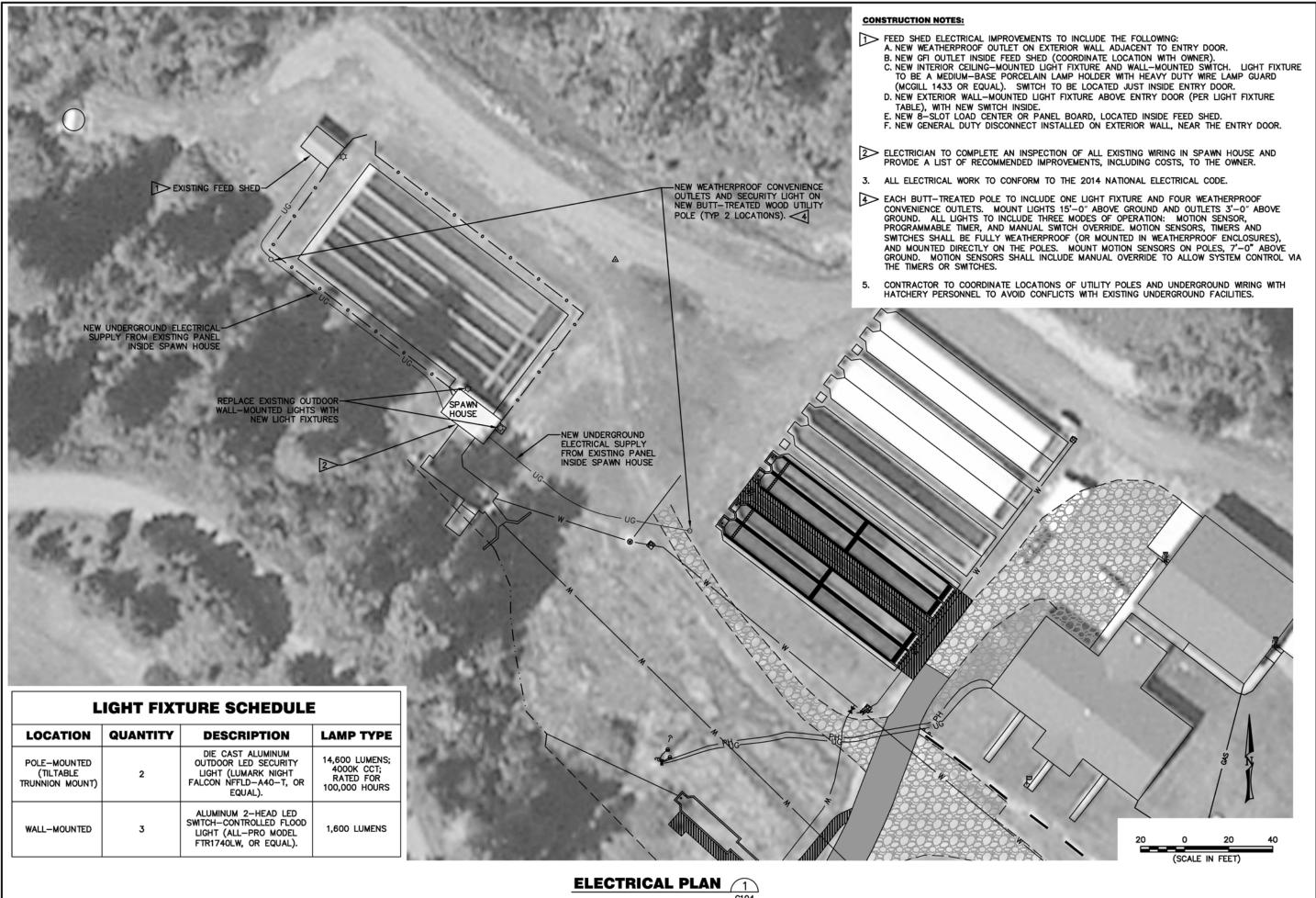
BAR SCALE IS ONE INCH
ON ORIGINAL DRAWING.

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

\$201

SHOW POND STRUCTURAL PLAN 1
SCALE: 1"=2'-0" C201



Copyright 2017® Robert Peccia & Associates

BY APPR. DATE

ST NO.

JENNESKENS. PE APRIL 2017
SIGNED BY

LESOFSKI 15207
ASWIN BY PROJECT NO.
TENSEN DE F-101

iver Trout Hatcher way Replacement

Jocko River Raceway

ELECTRICAL PLAN

SHEET TITLE

SHEET

E101